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AUTHOR Conroy, William G., Jr.; Diamond, Daniel E.
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ABSTRACT

The six-year study examined the impact of various secondary school occupational education programs upon the lifestyle of Massachusetts students, classes of 1969 and 1973. Focusing upon school-labor market relations, the report aims to provide a base for improving policies to prepare and guide students into successful careers. Four substantive sections present: (1) summary findings, (2) an explication of the research design and a statistical review, (3) a discussion section, and (4) policy recommendations drawn from the summary findings and back-up data. The summary findings and policy recommendations are considered valid within specified limitations, but are not based upon an exhaustive analysis of the data. Among the 11 summary findings are these: The high school experience did not overcome the labor market's sex bias; all occupational students had a short-lived labor market advantage; and, male trade and industrial students who did not attend postsecondary schools earned significantly more than both nonoccupational students who did not attend postsecondary school and male students from all programs who attended or graduated from two-year public colleges and State universities; employed longer, trade and industrial students expressed stronger positive attitudes toward their high school experiences and jobs, but voted less. (AJ)

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THE IMPACT OF SECONDARY SCHOOL OCCUPATIONAL EDUCATION IN MASSACHUSETTS

SPRING 1976

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Dr. William G. Conroy, Jr.
Dr. Daniel E. Diamond

College of Management Science
University of Lowell
Lowell, Massachusetts

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The study was initiated by the Division of Occupational Education under Dr. Charles H. Buzzell. Upon his resignation, support continued under Dr. John J. Manning, Acting Associate Commissioner of the Division of Occupational Education. Dr. Steve Kaagan, Deputy Commissioner of Education, was instrumental in maintaining support for this project, as was Dr. Janice J. Weinman, Executive Planner of the Massachusetts Department of Education. Dr. Patrick J. Weagraff, Associate Commissioner for the Division of Occupational Education maintained support for this project through its completion. All this is to say that the

Massachusetts Department of Education under Commissioner Gregory Anrig has provided continuous support for meaningful research for over two years.

Finally, without the dedication and technical competence of Mrs. Anne Bowes, this report could never have been prepared.

The views expressed in this report are those of the authors, and do not represent those of the Massachusetts Department of Education

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1. INTRODUCTION

Public secondary education in Massachusetts has assumed a responsibility to prepare students with "skills, experience and attitudes, and the guidance for initial job placement."(1) Although there are differences among secondary educational programs that provide students with occupational skills and experience in terms of curriculum content and length, they all share a common goal. Occupational education programs focus specifically upon preparing students for entry and success in the labor market. Since secondary students spend a fixed amount of time in school, the pursuit of job skills and work experience necessarily means giving up an equal amount of general academic education. For example, in some secondary schools in Massachusetts students spend between 50 to 70 per cent of their time in an occupational program, while in other secondary schools students have very little experience in a school-organized occupational education program.

The scope of occupational education in Massachusetts is substantial. According to estimations from the Massachusetts Department of Education, approximately 100,000 of the 414,000 students in grades 9-14 (excluding community and junior colleges) were enrolled in occupational education.(2) The available information suggests that between 25 and 30 per cent of the approximate 360,000 students in secondary education in Massachusetts are enrolled in occupational education programs, with the expectation that these educational experiences will improve opportunities for entry and advancement in the labor market.

There is evidence that occupational education is more costly than general academic education. For example, the difference in average instructional costs between regional vocational and regional academic schools is about $485 per

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(1) Educational Goals for Massachusetts, The Commonwealth of Massachusetts, Board of Education, September 1971, p. 10.

(2) Occupational Education in Massachusetts, Massachusetts Department of Education, Winter, 1975.

pupil; although these data overstate the extra cost of occupational education because regional vocational schools tend to offer more intensive occupational education programs than many occupational programs found in comprehensive schools.(3) A reasonable estimate of the additional annual instructional cost of occupational education at the secondary level in Massachusetts could be in the neighborhood of about $20,000,000 per year, based on approximately one half of the regional academic and vocational school difference cost ($240) times 90,000 students. The extra instructional cost per graduate probably ranges between $600 for the less intensive programs to $1600 for the more intensive programs.

Because of the commitment by Massachusetts to prepare youth with the skills and experiences necessary for entry and success in the labor market and the wide range of occupational education programs available, the Division of Occupational Education of the Massachusetts Department of Education has conducted a study to examine the impact of various secondary school programs upon the lifestyle of students. Major (but not exclusive) attention is focused upon school-labor market relations. The study is called "Transition of Massachusetts' Youth from School to Work", hereafter "Transition". The intent of "Transition" is to provide a knowledge base to improve policy for secondary education which is designed to help prepare and guide students into successful careers.

2. ORGANIZATION OF THE REPORT

This report consists of four substantive sections: Section 3, Summary Findings; Section 4, Research Design and Statistical Review; Section 5, Discussion of Summary Findings and Section 6, Policy Recommendations.

Although readers can simply skim the Summary Findings, they do so at their own risk. The authors recommend that if readers allow their judgment to

(3) Occupational Education in Massachusetts, Massachusetts Department of Education, The Commonwealth of Massachusetts, Board of Education, Winter, 1975.

be influenced by the Summary Findings, they should be sure they understand the basis upon which the Summary Findings rest. The readers "travel at their own risk", unless they decide to understand the qualifications accompanying each Summary Finding. Unfortunately, there are not simple explanations for complex relationships.

Summary Findings are supported by a presentation of the statistical evidence which documents each finding in Section 5, Discussion of Summary Findings. Section 4, Research Design and Statistical Review, affects all Summary Findings, and is helpful in interpreting the statistical evidence of the Discussion Section. It is not written in technical language, nor is it very long.

The Policy Recommendations do not reflect anyone's opinion but the authors. They are drawn from the Summary Findings and "back-up data", and are no more valid than policy recommendations any reader might draw. If they stimulate others to additional or alternative policy recommendations, they have served their purpose.

Finally, the Summary Findings and Policy Recommendations are not based upon an exhaustive analysis of "Transition" information. That is not to suggest that they are not valid, within the specified limitations. It is to say that much more can be learned about school-life relations through "Transition" from further analysis. "Transition" data are intact, thoroughly documented and available for further analysis through the Division of Occupational Education. Policy makers for occupational education might consider this report as a stimulus to "dig deeper" into the powerful data base to enhance understandings about school-life relations in Massachusetts. This report is offered on the assumption that others will re-examine the findings and recommendations presented and continue to probe these data from a variety of perspectives, in order to support more enlightened policy for occupational education in Massachusetts.

3. SUMMARY FINDINGS

1. There is a significant difference between the earnings of male and female students. Clearly, the high school experience does not overcome the enormous sex bias of the labor market.

2. Although there is no significant difference between the average annual income of all 1969 occupational and nonoccupational students who do not pursue postsecondary education, there is a significant average annual income difference in favor of all occupational students for the class of 1973. This difference disappears when the 1969 and 1973 classes are combined. All occupational students have a short lived labor market advantage, which is washed out within the first six years after graduation.

3. Trade and Industrial[3] program students who do not attend a postsecondary school have a significantly more favorable labor market experience than nonoccupational students who do not attend a postsecondary school. In the 1969 cohort they earn almost $2,000 more per year than their nonoccupational counterparts. If we correct for sex bias, and examine males only, the difference remains significant at $1378 per student. A significant difference also occurs for the 1973 class and the classes combined.

4. Male Trade and Industrial students who do not attend postsecondary schools also earn significantly more than male students from all programs who attend or graduate from two-year public colleges and state universities. These differences, together with the longer time period that Trade and Industrial students are employed, result in substantially larger total earnings for these students in comparison to students who attend postsecondary schools for the six years of the study. Thus, students who attend postsecondary schools, in addition to recovering the cost of their education, must make up a formidable sum of foregone earnings before they can begin to earn a return on their investment in higher education.

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[4]Trade and Industrial programs include: machine shop, automechanics, electronics, construction trades, graphic arts, food occupations, drafting, etc.

5. Cooperative Program students[5] in Trade and Industrial programs are employed significantly longer than students who do not participate in a Cooperative Program. Although their respective average annual ea ings do not differ significantly, the fact that Cooperative Program students work longer enables them to earn substantially more for the six years of the study. If Trade and Industrial students in Massachusetts who did not experience Cooperative Programs fared about as well as those who did, the benefit to society could be in excess of $26,000,000 each year.

6. The superior labor market experience of occupational students, especially Trade and Industrial program enrollees, seems to result from the independent effect of the school program. Background factors such as the student's socio-economic status and scholastic aptitude fail to explain the comparative success of occupational students in the labor market. Indeed, occupational students come from lower socio-economic levels and have lower scholastic aptitudes than nonoccupational students.

7. The great majority of students acquire their first job through their own efforts or by referrals from parents, relatives and friends. There is a significant difference between occupational and nonoccupational students as to the importance of teachers and guidance counselors. For those occupational students who do not attend a postsecondary school, teachers and guidance counselors helped about 23 per cent obtain their first job, as opposed to only 6 per cent for nonoccupational students.

8. Most occupational education students do not find jobs related to the occupational programs in which they were enrolled. After refining the data

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[5] A Cooperative Program is usually characterized by a student spending a substantial part of the senior year working in industry in the occupation for which he is being trained, under the supervision of the school.

and counting any related job among all jobs held, the largest percentage is only about 31 per cent for all occupational students. The degree of relatedness generally diminishes as individuals move from job to job.

9. Occupational and nonoccupational students are fairly active participants in local, state and national elections. However, occupational students who do not attend postsecondary school vote significantly less that their nonoccupational counterparts. Attendance in postsecondary school seems to wash out this difference. Since voting behavior is assumed as a proxy for citizenship by "Transition", this finding is not presented as a trivial result.

10. Students in all programs are largely satisfied with their high school, their job and their life in general. Occupational students, however, express stronger positive attitudes toward their high school experiences and their jobs.

11. Grade point average, attendance, length of vocational program and number of weeks in an exploratory program do not have a significant effect on average annual salary or months employed for occupational education students.

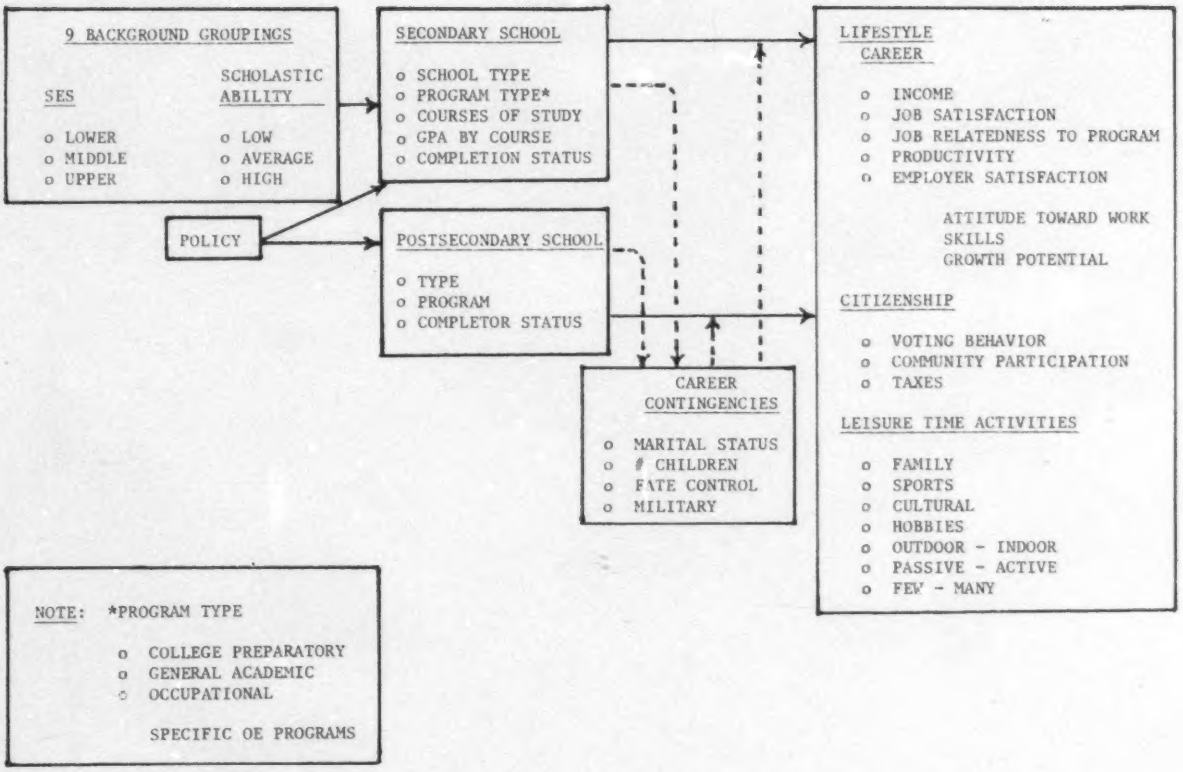
4. RESEARCH DESIGN AND STATISTICAL REVIEW

"Transition" is designed on an ex post facto basis, which simply means that at one point in time, namely the Summer and Fall of 1975, students who did or should have graduated from high school in 1969 and 1973 were asked in a mailed questionnaire for information describing certain aspects of their lifestyle. Figure 1 succinctly and schematically describes the ex post facto design.

Included in the survey questionnaire were permission slips to allow the researchers to gather information about the student's school experience, as

FIGURE I

"TRANSITION" DESIGN



NOTE: *PROGRAM TYPE

- o COLLEGE PREPARATORY
- o GENERAL ACADEMIC
- o OCCUPATIONAL

SPECIFIC OE PROGRAMS

well as some background factors. This data is helpful in order to determine the independent effect of various school programs on students. To put the matter in its simplest terms, "Transition" has gathered information about some major noneducational influences on lifestyle, so that the independent effect of various school programs on lifestyle characteristics can be estimated in a way that helps rule out competing causal experiences.

The analysis of "Transition" in this report uses a simple analytical technique: When differences in lifestyle characteristics are found among groups who experienced different school experiences, tests are performed to determine if these groups are different in terms of other nonschool experiences which might explain the lifestyle difference. Further analysis will use more high powered analytic tools to estimate the independent effect of school upon lifestyle.

Figure 1 presents the flow from school to adult life that forms the structure of "Transition". Students bring to secondary school different scholastic abilities and different home influences. Home influences are estimated by the educational attainment and occupation of the parent (socio-economic status or SES) and scholastic aptitude by the most recent so-called IQ tests administered to the student in school. Students enroll in a range of secondary and postsecondary school programs. Some receive better grades than others, some attend more regularly than others, most complete and a few drop out. After school some students join the military, some get married and have large families, others marry late in life or not at all. The research design of "Transition" is not meant to confuse the reader, but to emphasize the difficulty of estimating the independent effect of secondary school programs on subsequent lifestyles. As difficult as these relationships are to establish, they form the basis for society spending substantial sums of limited resources for various educational programs in Massachusetts and America.

Transition's Sample

"Transition" is based on a multi-stage sample. The first stage is schools and the second stage is students within schools. Figure 2 describes the number of schools that participated.

FIGURE 2

Sampling Design - First Stage (Schools)

	Comprehensive Schools	Self-Contained Vocational Schools
Cities Greater Than 100,000	1 10/21	5 1969 1973 5/9 6/10
Residential Suburbs Less Than 100,000	2 14/32	6 10/32
Industrial Suburbs Less Than 100,000	3 13/49	
Regions	4 1969 1973 11/42 16/44	7 1969 1973 4/6 8/11

The numerator specifies the number of schools in the study, while the denominator describes the number of schools in each cell. Schools were randomly selected within each cell. For the most part, findings are reported for all cells based on the type of program in which the student was enrolled, i.e., occupational or nonoccupational.

Assuming nondeliverables to be random, the response rate of "Transition" was slightly over 43 per cent (see Table 1). Note that total does not equal male plus female, because for some students it was not possible to determine sex (based on the available information). Although there are more male than female respondents, there are twice as many male nonrespondents and nondeliverables. The findings in this report are essentially uncorrected for nonresponse bias, and Table 1 characterizes the nonresponse bias represented in the findings.

TABLE 1

Mailout and Response Population

	Male	Female	Total
Students Selected			
'69 Students	2850	1485	4144
'73 Students	2454	1243	3750
	5304	2728	7894
Respondents			
'69 Students	683	475	1209
'73 Students	878	531	1433
	1561	1006	2642
Nonrespondents			
'69 Students	1193	580	1788
'73 Students	1150	500	1664
	2343	1080	3452
Nondeliverables			
'69 Students	704	430	1147
	426	212	653
	1130	642	1800

All data of "Transition" (except for relational analysis - see below) are weighted, i.e., multiplied by numbers which expand a sample statistic to a population estimate. For example, if a student is from a school of 500, and 50 students in his school responded, he would have a second stage weight of 10. If the school the student attended was in a group of 10 participating schools, randomly selected from a group of 30, his first stage weight would be 3, and his total weight would be 30 (10 x 3). Each group of students from different schools carry different weights. Although the weighting process is a bit more complex (and includes some adjustment for nonresponse), it is obvious why a high speed computer is required to analyze this complex data set.

Statistical Analysis

The fundamental strategy of analysis for "Transition" has been stated: when lifestyle differences are found, comparisons of non-school experiences will

be referenced between the groups for whom a difference exists before an educational experience is suggested as being causal. Because of weighting, all values will be estimates of the total population, even though they were developed from a sample. Data will be reported only if there is a sufficient number of observations to assure it is representative of the group being examined. This is true for averages of groups being compared, for example, the average annual salary of graduates of occupational and nonoccupational education programs.

To determine if a difference between the average scores for two groups is significant, a t-ratio is used:

$$t = \frac{M_a - M_b}{SE_{ma-mb}}$$

The weighted standard error formula is slightly different from the regular formula. If we report the difference as significant we simply mean that it is not likely that chance could account for the difference. All differences reported as significant could only occur by chance, less than 5 out of 100 times.

Often, we will describe a crossbreak of respondents for a frequency distribution:

LABOR MARKET EXPERIENCE
OF ALL NONOCCUPATIONAL STUDENTS OF THE 1969 CLASS

	AVERAGE ANNUAL SALARY PER STUDENT FULL-TIME EMPLOYMENT	MONTHS EMPLOYED PER STUDENT FULL-TIME JOBS	MONTHS UNEMPLOYED PER STUDENT
ALL NONOCCUPATIONAL STUDENTS	$7501	50	22

or

JOB SATISFACTION FOR ALL OCCUPATIONAL STUDENTS
1969 AND 1973 CLASSES COMBINED

PROGRAM	VERY SATISFIED	SATISFIED	DISSATISFIED
ALL OCCUPATIONAL STUDENTS	58.5%	38.8%	2.7%

Remember, the numbers in these tables are based on weighted population estimates, and are considerably larger than the number in the sample. If they were not, the findings would show a bias toward the smaller schools or cells in which there are only a few schools.

Another statistic used is called chi square (X^2). It simply describes the chances of one set of circumstances being independent of another. For example, the following table suggests we would reject the notion that eye color is independent of hair color:

		HAIR COLOR	
		BLACK	YELLOW
EYE COLOR	BLUE	20%	80%
	GREEN	80%	20%

The strategy of X^2 is that if you reject independence, then you accept a relationship, i.e., yellow hair is related to blue eyes. If we report a X^2 as significant, we are saying that the chance of being wrong in rejecting the independence among variables is less than one in one hundred. All X^2's are calculated on weighted data. Frequently, variables can be statistically independent, but the differences can be so slight that they are not practically different.

The correlation coefficient is also utilized. It is a measure of relationship between two variables, for example height and weight. Correlation coefficients range from -1.00 to +1.00. A .7 correlation coefficient means that there is about a 49 per cent relationship between height and weight (square the correlation coefficient). Notice that we do not say that one variable (height) causes another (weight), but that about 50 per cent of height (or weight) is related to weight (or height). Although it is not possible to infer causation from a correlation coefficient, we frequently ignore such a conclusion at our own peril, e.g., a .7 relationship between number of cigarettes smoked per week and the incidence of throat cancer.

With correlation coefficients, significance is a measure of the reality of a relationship between variables. The following rule of thumb is "good enough" in interpreting correlation coefficients.

	Level of Significance	
	.05	.01
30 to 100 pairs	.31	.42
100 pairs or more	.16	.23

Correlation coefficients of less than these values do not describe significant relationships between variables, only a chance relationship. Significant relationships, even though they are small, are more helpful in understanding the world in which we live than no information at all about relationships among phenomena.

All salary (earnings) data is presented in terms of the purchasing power of 1975 dollars. In the time period covered by "Transition" there have been substantial changes in the price level. Between 1969 and 1975 the Consumer Price Index (CPI) has risen from 109.8 to 159.8, an increase of 45.5 per cent.

The CPI is comprised of a representative group of goods and services purchased by households. It is widely used by government, business and labor organizations to measure changes in the purchasing power of earnings. The Index's base period is 1967 = 100. This report compares average annual salaries for students who entered the labor market at various points between 1969 and 1973. In order to eliminate any distortions due to inflation all data are expressed in real (constant) 1967 dollars by utilizing the CPI, and then converted to 1975 dollars, in order to provide a more realistic picture of earnings in terms of today's prices.

Finally, all "Transition" information describes groups of students, by a few measures, not a typical student by multi-measures. At best, "Transition" provides a few dimensions through which infinitely complex human beings and institutions can be categorized over a period of time. Because a manageable educational policy must necessarily over-simplify real world conditions by specifying rules or categories for a host of experiences and human beings, the match between "Transition" data and policy reality is reasonable. Although it is practice to make policy for groups of students based on little information, readers are cautioned that it is as dangerous to over-interpret "Transition" findings as it is to ignore them. The "truth" of reality is not easy to comprehend, but a necessary and continuous struggle for those interested with improving public education.

5. DISCUSSION OF SUMMARY FINDINGS

Before presenting the analysis upon which the Summary Findings are based, it is useful to profile some of the characteristics of the 1969 and 1973 student groups. As indicated in Table 1, the unweighted returns include more males than females. There are approximately an equal number of males and females in all occupational programs. By far the largest occupational programs in Massachusetts are office Occupations and Trade and Industrial programs, which account for

approximately 82 per cent of all full-time occupational students[6]. The "Transition" response population reflects the sex bias of these programs, the Office Occupations programs are predominately female and Trade and Industrial students are almost exclusively males.

TABLE 2

DISTRIBUTION OF STUDENTS IN OFFICE OCCUPATIONS AND TRADE AND INDUSTRIAL PROGRAMS BY SEX 1969 AND 1973 CLASSES COMBINED

PROGRAM	MALE	FEMALE
OFFICE OCCUPATIONS STUDENTS	20%	80%
TRADE AND INDUSTRIAL OCCUPATIONS STUDENTS	95%	5%

Based on a consideration of a parent's education and occupation, a socio-economic status (SES) was created for each respondent. Table 3 reveals that the great majority of students fall into the middle SES group. However, there is a significantly larger proportion of occupational students in the low SES range. Correspondingly, a larger percentage of nonoccupational students are in the higher socio-economic status.

TABLE 3

SOCIO-ECONOMIC STATUS BY TYPE OF PROGRAM 1969 AND 1973 CLASSES COMBINED

	SES		
	LOW	MIDDLE	UPPER
ALL NONOCCUPATIONAL STUDENTS	7%	72%	21%
ALL OCCUPATIONAL STUDENTS	18%	79%	3%

(6) Occupational Education in Massachusetts, Massachusetts Department of Education, Winter, 1975.

Utilizing data from tests administered in high or junior high school, a scholastic aptitude score (IQ) was developed for each respondent. Table 4 indicates that a significantly larger proportion of nonoccupational students are in the high scholastic aptitude range than occupational students. Since occupational students are more disadvantaged than nonoccupational students (on average), it would be reasonable to conclude that a positive lifestyle difference in favor of occupational education students could be caused by differences in the secondary school program.

TABLE 4

SCHOLASTIC APTITUDE DISTRIBUTION
1969 AND 1973 CLASSES

	SCHOLASTIC APTITUDE LOW	SCHOLASTIC APTITUDE MIDDLE	SCHOLASTIC APTITUDE UPPER
ALL NONVOCATIONAL STUDENTS	5%	61%	34%
ALL VOCATIONAL STUDENTS	14%	76%	10%

Finally, as might be expected, a larger percentage of nonoccupational students attend postsecondary school than nonoccupational students. Eighty-one per cent of nonoccupational students attended some form of postsecondary school, compared to forty-eight per cent of occupational students.

TABLE 5

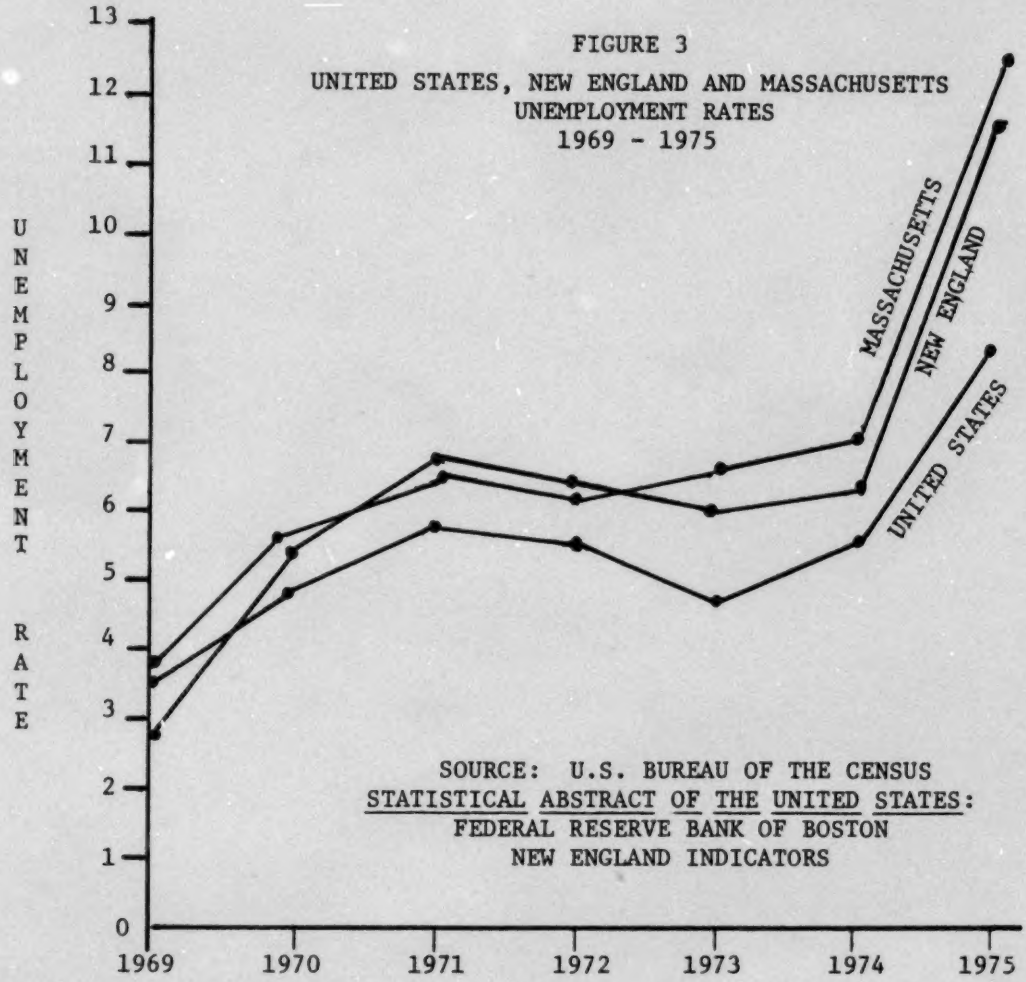
DISTRIBUTION OF OCCUPATIONAL AND NONOCCUPATIONAL STUDENTS
BY POSTSECONDARY SCHOOL ATTENDED
1969 AND 1973 CLASSES COMBINED

	ATTENDED POSTSECONDARY SCHOOL
OCCUPATIONAL STUDENTS	48%
NONOCCUPATIONAL STUDENTS	81%

Labor Market History

The period covered by "Transition" in 1969 to 1975. These years have been turbulent ones for the nation, and Massachusetts in particular. Recessions occurred in 1969-1970 and in 1973-1975, accompanied by high rates of inflation. Prior to the onset of the 1969 recession (November 1969), the Massachusetts unemployment rate was lower than that of the nation and New England (Figure 3).

FIGURE 3
UNITED STATES, NEW ENGLAND AND MASSACHUSETTS
UNEMPLOYMENT RATES
1969 - 1975



SOURCE: U.S. BUREAU OF THE CENSUS
STATISTICAL ABSTRACT OF THE UNITED STATES:
FEDERAL RESERVE BANK OF BOSTON
NEW ENGLAND INDICATORS

However, since 1969 the relative economic health of Massachusetts has deteriorated markedly. Significant declines in employment have occurred in the nondurable goods manufacturing sector, especially in food, textiles, apparel and

leather products. Reductions in job opportunities are not of recent origin. But, in the past they have been offset by vigorous growth in the dynamic durable goods manufacturing sector such as machinery, electrical machinery, instruments and the like. The fundamental realignment of the national defense effort associated with the end of United States involvement in Vietnam, the scaling down of expenditures on space exploration and sharply rising energy costs have had a major impact on Massachusetts. The only sector to exhibit significant employment growth has been services, such as finance, insurance and government. As a consequence, the relative unemployment rate in Massachusetts compared to the rest of America has grown, particularly since the onset of the 1973-1975 recession in the fourth quarter of 1973. There is no reason to suspect that these conditions have a differential impact on program completors. Such adjustments in a state's economy are typical; the recent "hard times" provide little basis for softening the findings of "Transition".

Much of the labor market analysis centers on the 1969 class, since they have been in the labor market the longest. Those who did not go on to post-secondary education have been available for work for more than six years, while most of those who attended postsecondary school have been in the labor market from two to five years.

Finding 1: Sex Bias

Table 6 indicates the extent of the sex bias in the labor market. Since all differences presented in Table 6 are significant and because the differences are calculated on all students in the sample regardless of educational attainment, secondary program attended or any other variable, it is clear that comparisons to determine the differential effectiveness of secondary school programs must be made by sex. There are no differences in average annual income between females who have had occupational education and those who have not.

TABLE 6

DIFFERENCES IN AVERAGE ANNUAL SALARIES
BETWEEN MALES AND FEMALES

AVERAGE ANNUAL SALARY
FULL-TIME EMPLOYMENT

	1969 CLASS	1973 CLASS	COMBINED CLASSES
MALE	$8476	$6632	$7610
FEMALE	$7653	$5847	$6787

1975 DOLLARS

There is ample evidence that females have less access to higher paying occupations than males and even when employed in the same job receive lower pay(7). It is important the readers keep this finding clearly in mind as they evaluate the evidence offered in support of the major findings of "Transition".

Finding 2: Income Differences Between Occupational and Nonoccupational Students

Table 7 presents the average annual salaries of all students in occupational and nonoccupational programs in the class of 1969, 1973 and for both classes combined. All data are on a per student basis, and are only for students who do not pursue postsecondary education.

TABLE 7

AVERAGE ANNUAL INCOME AND AVERAGE NUMBER OF MONTHS EMPLOYED
CLASS OF 1969, CLASS OF 1973 AND BOTH CLASSES COMBINED FOR STUDENTS
WHO DO NOT PURSUE POSTSECONDARY EDUCATION

	AVERAGE ANNUAL SALARY FULL-TIME EMPLOYMENT			AVERAGE NUMBER MONTHS EMPLOYED FULL-TIME EMPLOYMENT		
	CLASS 1969	CLASS 1973	CLASSES COMBINED	CLASS 1969	CLASS 1973	CLASSES COMBINED
ALL OCCUPATIONAL STUDENTS	$8003	$6488	$6994	56	26	37
ALL NONOCCUPATIONAL STUDENTS	$7501	$6015	$6651	50	23	34

1975 DOLLARS

(7) See Dixie Sommers', "Occupational Rankings for Men and Women by Earnings", Monthly Labor Review, August 1974.

The only difference that is significant (not likely to be due to chance) is the average annual salary between the 1973 occupational and nonoccupational classes. That difference is about $475 per student per year, which is meaningful when one considers the number of students enrolled in occupational education who do not attend a postsecondary school. As the difference is maintained over two years, a calculation of the extra average income in aggregate would always include two classes. Because about 50 per cent of occupational education students do not attend postsecondary school and since Massachusetts' secondary schools graduate about 30,000 occupational students per year, the extra annual benefits for secondary occupational education, based on this limited part of the total picture, exceeds $14,000,000 per year. This is a very rough estimate for all students who were enrolled in occupational education programs and did not attend a postsecondary school. These findings are quite amazing, when one considers the enormous sex bias in the labor market and that it is estimated on only one-half of the graduates per year. All the other differences in Table 7 are not significant (which means they could be due to chance), even though they look large. However, they all favor occupational education students, which would make one suspect that tests more sensitive than the t-ratio might turn up significance in favor of occupational education students.

Finding 3: Trade and Industrial Students Enjoy An Overwhelming Labor Market Advantage Compared To All Secondary Students Who Do Not Attend A Postsecondary School

Table 8 presents significant differences in average annual earnings between Trade and Industrial program students who do not attend postsecondary school and other students who do not attend postsecondary school on a per student basis.

TABLE 8

DIFFERENCES IN AVERAGE ANNUAL INCOME
BETWEEN MALE TRADE AND INDUSTRIAL STUDENTS
WHO DO NOT ATTEND POSTSECONDARY SCHOOL
AND OTHER MALE STUDENTS WHO DO NOT ATTEND
POSTSECONDARY SCHOOL
1975 DOLLARS

	AVERAGE ANNUAL SALARY FULL-TIME EMPLOYMENT		
	1969 CLASS	1973 CLASS	CLASSES COMBINED
TRADE AND INDUSTRIAL PROGRAM STUDENTS	$9483	$7341	$8075
MALE NONOCCUPATIONAL STUDENTS	$8105	$6518	$7228

The discussion will only deal with the significant difference between male Trade and Industrial students who do not attend postsecondary school and male nonoccupational students who do not attend postsecondary school. These significant differences eliminate the sex bias in the labor market, and provide a clearer estimate of the enormous impact of Trade and Industrial programs at the secondary level.

The difference in average annual salary for the 1969 class between Trade and Industrial and nonoccupational students is $1378 per student. On the reasonable assumption of 7700 Trade and Industrial graduates per year in Massachusetts[8] and that for a six year period there are six graduating classes averaging this extra annual income, the annual extra income for Trade and Industrial male students who do not attend postsecondary school (compared to nonoccupational education male students who also do not attend postsecondary school) is ($1378 x 3850 x 6) over $31,000,000 in Massachusetts alone. This extra income should generate something around $8,000,000 in taxes per year.

(8) Occupational Education in Massachusetts, Massachusetts Department of Education, Winter, 1975.

No matter how you slice the data, Trade and Industrial programs are a sound investment for male secondary students who do not plan to attend college, both for the student and society. The difference in average annual salary seems to increase as the students extend their experience in the labor market, and there is no significant difference in the average number of months employed between Trade and Industrial and nonoccupational students who do not attend a postsecondary school. If these differences hold up across America, the extra benefits could exceed one billion dollars per year for Trade and Industrial students who do not attend a postsecondary school ($31,000,000 x 35 states).

To try to bring some perspective to this finding, assume the extra cost of Trade and Industrial programs to be $2,000[9] per student and the extra benefits (average annual income over six years) to be $8268. That turns out to be a four to one return on investment, with about 25 per cent returning to government in taxes (at least) and 75 per cent invested in goods and services. Obviously, one can not simply multiply by all the male students who do not attend a postsecondary school nor complete a Trade and Industry program to arrive at a precise estimate of the burden on society of current secondary school policy. Needless to say, however, the cost seems staggering.

Finding 4: Trades And Industrial Students Who Do Not Attend Postsecondary School Enjoy A Significantly Higher Average Annual Income Than Male Students Who Attend Postsecondary School -1969 Class Only

Table 9 presents one of the more interesting findings of "Transition". It is for males only, to avoid confusing results with the sex bias of the labor market, and just describes the class of 1969 because it is necessary to use the full six years to generate these comparisons.

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(9) A high figure, see: Occupational Education in Massachusetts, Massachusetts Department of Education, Winter, 1975.

TABLE 9

AVERAGE ANNUAL SALARY OF TRADE AND INDUSTRIAL MALES
WHO DID NOT ATTEND POSTSECONDARY SCHOOL
AND MALES WHO ATTENDED VARIOUS POSTSECONDARY SCHOOLS - 1969 CLASS

1975 DOLLARS

	AVERAGE ANNUAL SALARY FULL-TIME EMPLOYMENT
TRADE AND INDUSTRIAL MALES WHO DID NOT ATTEND POSTSECONDARY SCHOOL	$9483
ALL MALES WHO ATTENDED ANY POSTSECONDARY SCHOOL	$8479
ALL MALES WHO ATTENDED 2-YEAR PUBLIC POSTSECONDARY SCHOOL	$7470
ALL MALES WHO ATTEND A 4-YEAR UNIVERSITY	$8605

Differences between average annual income for all postsecondary students and Trade and Industrial secondary students are significant. All this does not say postsecondary education is not useful. Students should know the real cost of attending college, and compared to Trade and Industrial students who do not attend a postsecondary school the cost is about $9,500 per year in foregone earnings, plus tuition, room and board and related expenses and a significantly smaller average annual income during the first several years in the labor market. For a late college or university graduates, this difference could be as high as $50,000.

Although this finding is interesting, it was not unexpected, as it had been previously confirmed that the rate of return in higher education is diminishing.[10] The assumption of a consistently positive relationship between postsecondary education and higher earnings simply has vanished in complex, technological American society. Obviously, there are other advantages to higher education, but average annual salary seems of fundamental importance in a capitalistic society.

(10) See Richard Freeman and Herbert Holloman, "The Declining Value of Going to College", Change, September, 1975.

Finding 5: Trade And Industrial Cooperative Program Students Are Employed Significantly Longer Than Trade and Industrial Students Who Do Not have A Cooperative Program.

Although the average annual income for 1969 Trade and Industrial students who had a Cooperative Program ($9,049) and those who did not ($9104) is not statistically different, the students who experienced a Cooperative Program were employed about one year longer. This means that for the six years the 1969 class was in the labor market, Cooperative Program students earned about $9,000 more than students who did not have a Cooperative Program.

To estimate the total impact of this finding, let us assume that about 23 per cent of Trade and Industrial students have a Cooperative Program, while 77 per cent do not.(11) On the assumption of 7700 Trade and Industrial graduates per year in Massachusetts (see Finding 3), about 5930 completors do not have a Cooperative Program, while about 1770 participate in a Cooperative Program. Since "Transition" data are averaged over six years, it is reasonable to assume that for any given year the extra earnings of Cooperative Program Trade and Industrial students is approximately an additional year's average annual income ($9000) of all Cooperative Program completors who do not attend a postsecondary school.

To estimate the aggregate annual cost of 77 per cent of Trade and Industrial students not being enrolled in a Cooperative Program, one can multiply the 2965 Trade and Industry completors by $9000. Although $26,000,000 annual income may seem like a high estimate, it does provide a sense of the order of magnitude of this finding. On a national level, the difference could exceed about one half billion dollars per year ($26,000,000 x 35 states).

Finally, "Transition" has no information on the extra cost of Cooperative Programs. Since Cooperative Programs typically involve no capital outlay and are usually supervised as a part of a teacher's regular responsibilities, they would not seem to involve much extra expense.

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(11) Learning a Living Across the Nation, Vol. III, November, 1974, Northern Arizona University, Flagstaff, Arizona.

Finding 6: The Superior Labor Market Behavior Of Occupational Students Seems To Result From The Independent Effect Of The School Program.

Table 10 is an extension of Tables 3 and 4. It breaks out SES and IQ for Trades and Industrial and Office Occupations programs.

TABLE 10

SES AND SCHOLASTIC APTITUDE
FOR THE CLASSES OF 1969 AND 1973

	SES			SCHOLASTIC APTITUDE		
	LOW	MIDDLE	UPPER	LOW	MIDDLE	UPPER
ALL NONOCCUPATIONAL	7%	72%	21%	5%	61%	34%
ALL OCCUPATIONAL	18%	79%	3%	14%	76%	10%
OFFICE OCCUPATIONS STUDENTS	21%	75%	4%	12%	76%	12%
TRADE AND INDUSTRIAL STUDENTS	14%	83%	3%	17%	75%	8%

The X^2 tests indicate that SES and scholastic aptitude are not equally distributed across occupational and nonoccupational programs, and that these differences hold for both Office Occupations (predominantly female) and Trades and Industrial programs at the secondary level in Massachusetts. It is not reasonable to conclude that the income advantage enjoyed by all occupational students (1973 class) or by Trade and Industrial students is a result of family background or scholastic aptitude, even though previous research would lead one to suspect that disadvantages on these important measures would predict inequality in career achievement[12]. Clearly, occupational education is making a difference in average annual income for students who have fewer social and aptitude advantages. If occupational education students were comparatively advantaged on these measures, the likelihood of the educational program being causal in labor market success

(12) Socioeconomic Background and Achievement, Duncan, Featherman and Duncan, Seminar Press, New York, 1972.

would be diminished. If there were no differences, a cause and effect relation would be justified. Given the extent of the difference between occupational and nonoccupational students on family and aptitude advantages, it is difficult not to conclude that occupational education in the secondary school has a powerful independent effect on average annual earnings. Further analysis on "Transition" data (multiple regression) can confirm this conclusion.

Finding 7: Secondary Schools Play A Minor Role in Helping Youth Find Employment

As Table 11 unmistakingly states, secondary schools do a miserable job in helping students obtain employment.

TABLE 11

	ALL STUDENTS	NONOCCUP. NO POST-SECONDARY STUDENTS	NONOCCUP. WITH POST-SECONDARY STUDENTS	OCCUP. NO POST-SECONDARY STUDENTS	OCCUP. WITH POST-SECONDARY STUDENTS
ON MY OWN OR BY CONTACTING EMPLOYERS	55%	51%	56%	37%	50%
PARENTS, RELATIVES OR PERSONAL FRIENDS	26%	31%	24%	31%	23%
NEWSPAPER ADVERTISEMENTS	7%	7%	7%	6%	5%
PRIVATE EMPLOYMENT SERVICE	4%	3%	5%	1%	1%
STATE EMPLOYMENT SERVICE	2%	1%	3%	3%	2%
TEACHER AND GUIDANCE COUNSELOR	6%	7%	5%	22%	19%

About 93 per cent of all students find their first full time job on their own, through parents, newpaper advertisements or employment services. The critical comparisons are for students who do not attend a postsecondary school. For non-occupational students, the performance of the school in helping them find a job is bleak, particularly in light of the Massachusetts educational goal of guiding

students into "initial job placement". Although it should be no consolation to the educational community, the state employment service seems to be doing even worse in helping students with first job placement.

Teachers and guidance counselors do a significantly better job for occupational students, helping almost 25 per cent of them obtain their first job. There might be severe differences between Office Occupations and Trade and Industrial programs, the data have not been analyzed by these distinctions. Even though schools do significantly better in Massachusetts in helping occupational students find a first full-time job, the performance by all schools seems disappointing, given the clear goal of public education in Massachusetts to help students find their first job.

Finding 8: Two Thirds Of Occupational Students Do Not Work In The Field For Which Trained

As Table 12 states, about two thirds of the students who graduate from occupational programs never work in the field in which they were prepared.

TABLE 12

PERCENTAGE OF STUDENTS ENROLLED IN HIGH SCHOOL OCCUPATIONAL PROGRAMS, EXCLUDING BOTH HOUSEWIVES AND THOSE WHO ATTENDED A POSTSECONDARY SCHOOL, WHO WORKED IN JOB FOR WHICH TRAINED BOTH COHORTS

	FIRST JOB	SECOND JOB	ANY JOB
All Occupational	27%	12%	32%
Office Occupations	23%	7%	29%
Trade & Industrial	35%	20%	37%

This is a fair estimate of relatedness of specialized occupational education in the secondary school and subsequent work experience for three important reasons:

(1) Housewives and occupational students who attend postsecondary school were considered out of the labor market and removed from analysis;

(2) The "Any Job" column is the percentage of all students (excluding housewives and students who attended a postsecondary school) who worked in a job related to their secondary occupational education program for the first five full-time jobs in the labor market;

(3) Relatedness was not determined by the student, but by coding a described job with a Dictionary of Occupational Titles' number, and cross referencing that number to a code number supplied by each school describing the occupational program in which the student was enrolled. The computer did the matching.(13)

Although these findings might seem damaging to specialized occupational education at the secondary level, they should be viewed in light of the other findings of "Transition". From a broader persepective, such a finding seems consistent with expectations for teen age youth in an open and capitalistic society. Since this finding is best examined in conjunction with other findings, discussion will be postponed until the Policy Recommendations section.

Finding 9: Citizenship Activities of Occupational Students

A major goal of public education in Massachusetts is to "foster individual commitment to exercise the rights and responsibilities of citizenship..... ."(14) Since occupational education students essentially give up between 30 per cent to 70 per cent of their secondary general academic education in Massachusetts, it seems important to determine if this results in different citizenship behavior upon leaving high school. "Transition" assumed that voting in local, state and national elections is the single best measure of citizenship.

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(13) Vocational Education and Occupations, U. S. Office of Education and U. S. Department of Labor, July, 1969.

(14) Educational Goals for Massachusetts, The Commonwealth of Massachusetts, Board of Education, September, 1971.

Table 13 shows that even though all occupational education students vote significantly less often than nonoccupational students, this difference is reversed when a comparison is made between occupational and nonoccupational students who attend postsecondary school. However, the difference between occupational and nonoccupational education students who do not attend postsecondary school remains significant. "Transition" data suggests that this difference can not be explained by SES.

TABLE 13

VOTING BEHAVIOR OF THE COMBINED 1969 AND 1973 CLASSES

	VOTING FREQUENCY LOCAL, STATE AND NATIONAL ELECTIONS		
	FREQUENTLY	AVERAGE	INFREQUENTLY
ALL OCCUPATIONAL STUDENTS NOT ATTENDING A POSTSECONDARY SCHOOL	20%	17%	63%
ALL NONOCCUPATIONAL STUDENTS WHO DO NOT ATTEND A POSTSECONDARY SCHOOL	29%	25%	46%
ALL OCCUPATIONAL STUDENTS WHO ATTEND POSTSECONDARY SCHOOL	51%	11%	38%
ALL NONOCCUPATIONAL STUDENTS WHO ATTEND POSTSECONDARY SCHOOL	43%	19%	38%

These findings suggest that educational attainment beyond the postsecondary school is related to more frequent voting behavior, but that occupational students who do not benefit from the "stimulus" of postsecondary education indeed vote less frequently than nonoccupational students who do not attend a postsecondary school. In light of the large number of students represented by "Transition" and the value placed on voting as a reasonable proxy for citizenship, this could be an important finding to policy for occupational education.

Finding 10: Job And Life Satisfaction and Evaluation of High School

As described by Table 14, all occupational students are significantly more satisfied with their job than nonoccupational students, but there are no practical differences between these students and their perceived satisfaction with life.

TABLE 14

JOB AND LIFE SATISFACTION FOR ALL STUDENTS IN THE 1969 AND 1973 CLASSES

	JOB SATISFACTION			LIFE SATISFACTION		
	VERY SATISFIED	SATISFIED	NOT SATISFIED	VERY SATISFIED	SATISFIED	NOT SATISFIED
ALL NONOCCUPATIONAL STUDENTS	52%	42%	6%	84%	15%	1%
ALL OCCUPATIONAL STUDENTS	59%	39%	2%	86%	13%	1%

Given the relative value of the secondary school to the average annual income of occupational and nonoccupational students, it is not surprising that occupational students are significantly more positive in their evaluation of high school than nonoccupational students.

TABLE 15

EVALUATION OF HIGH SCHOOL BY ALL STUDENTS IN THE 1969 AND 1973 CLASSES

	HIGH	AVERAGE	POOR
ALL OCCUPATIONAL STUDENTS	19%	54%	27%
ALL NONOCCUPATIONAL STUDENTS	9%	50%	41%

Finding 11: With The Exception Of Cooperative Programs, "Transition" Was Unable To Detect Anything Within Occupational Programs Related To Average Annual Income or Months Employed

It was hoped that "Transition" would provide further clues for occupational education policy. Table 16 is called a correlation table, and it simply says that no other meaningful relations exist.

TABLE 16

CORRELATION RELATIONSHIPS AMONG ALL OCCUPATIONAL STUDENTS AND MALE TRADE AND INDUSTRIAL STUDENTS WITHOUT POSTSECONDARY EDUCATION CLASS OF 1969

	ALL OCCUPATIONAL STUDENTS MALES AND FEMALES		TRADE AND INDUSTRIAL PROGRAM STUDENTS MALES	
	AVERAGE ANNUAL SALARY FULL-TIME EMPLOYMENT	MONTHS EMPLOYED	AVERAGE ANNUAL SALARY FULL-TIME EMPLOYMENT	MONTHS EMPLOYED
GRADE POINT AVERAGE	.117	.131	.070	.168
TOTAL DAYS ATTENDED HIGH SCHOOL	-.023	.079	-.007	.089
NUMBER OF CONTACT HOURS IN OCCUPATIONAL PROGRAMS	.174	.069	.116	.048
NUMBER OF WEEKS IN EXPLORATORY PROGRAMS	-.016	.156	-.148	-.098

It may be important (or at least interesting) to explain these zero order correlations. For example, that grade point average is not related to average annual salary either suggests that the sorting by grades does not mean much because the grades are fairly homogeneous or that the students are homogeneous (a selection process) and the sorting by grades process does not matter. Perhaps what matters is getting into an occupational program in the first place. The reader can draw his/her own conclusions about these findings. For example, average annual salary for the first five jobs in the labor market might not be a sensible criterion for evaluating exploratory programs. If it is, they do not appear to make much difference.

A Concluding Remark

Two additional findings are mentioned, although they are not incorporated into the main logic of this report. They are mentioned because they might be of interest to those conducting further research on "Transition".

Table 17 makes clear that occupational education students are more likely to remain in Massachusetts than nonoccupational students.

TABLE 17

STUDENT'S RESIDENCE IN 1975
1969 AND 1973 CLASSES COMBINED

	WITHIN MASSACHUSETTS	OUTSIDE OF MASSACHUSETTS
ALL OCCUPATIONAL STUDENTS	93%	7%
ALL NONOCCUPATIONAL STUDENTS	84%	16%

In view of the favorable employment of occupational education students, this significant difference is clearly of advantage to Massachusetts. This finding also suggests a scope for manpower demand data in planning occupational education.

Table 18 shows that a significantly greater number of occupational students are married in the first six years following graduation than nonoccupational students.

TABLE 18

MARITAL STATUS BY 1975
CLASSES OF 1969 AND 1973

	SINGLE	MARRIED
ALL OCCUPATIONAL STUDENTS	56%	44%
ALL NONOCCUPATIONAL STUDENTS	72%	28%

These significant and substantial differences could mean that students in occupational programs mature at a faster rate. Perhaps postsecondary education delays maturity, or maybe marriage, maturity and a structured society are not related. To determine the independent relationship of marriage on average annual income, for example, requires developing and testing models through some form of multiple regression. Such analysis is way beyond the scope of this report, but should be noted by readers as a possible source of error. Future research should be able to develop a model which explains this important finding.

6. POLICY RECOMMENDATIONS

Setting policy is not the function of social scientists. Suggesting policy implications from research findings to policy makers and the public does not seem inconsistent with the responsibilities of social scientists, as long as policy makers recognize that social policy must be responsive to the values of the larger society. "Transition" has made no attempt to quantify American values toward the goals of secondary education. "Transition" provides information which estimates the effect of occupational education at the secondary level on the lifestyle of former students and society in time past. Since a new policy for occupational education usually involves changing the school experience for future students to accomplish through education a desired objective for individuals and/or society, information which describes the previous impact of education should be helpful to policy makers. Such information does not help the policy maker determine the "What ought to be" questions, in this case: "What ought to be the role of public secondary education in preparing students for the world of work in a free and capitalistic society?"

Two points ought to be emphasized as a preface to specific policy recommendations: (1) "Transition" has focused attention on Trades and Industrial and Office Occupations programs because they represent about 82 per cent of the

enrollment in occupational education at the secondary level in Massachusetts[15] and (2) average annual salary has been used as the single most important criterion based on the assumption of its critical contribution to the well being of both individuals and society in America. It is hoped that making these decisions explicit will help the reader in evaluating the policy recommendations suggested in the report.

(1) If average annual income is an important goal for secondary education in Massachusetts, Trades and Industrial programs for males is a sound social investment for students not likely to attend college. Since 40 per cent of Trade and Industrial students work in at least one job related to their secondary occupational education program and about 60 per cent do not, it would seem that there is something of sufficient power occurring in these programs to account for labor market success that does not depend upon finding and keeping a job in the field for which trained.

Trade and Industrial programs at the secondary level in Massachusetts could be characterized as intensive learning about work through work experiences which are perceived as meaningful to students. Throughout the program students are given responsibility to complete increasingly complex tasks on time and within acceptable performance ranges. These jobs range from troubleshooting complex electronic equipment to tuning an engine. Somehow, these educational programs seem to cause superior labor market experiences for students, whether or not they ever work in the field for which trained. It hardly seems unreasonable to suggest that positive attitudes toward self as a capable person (unmeasured by "Transition") might be the essential link

(15) Occupational Education in Massachusetts, Massachusetts Department of Education, Winter, 1975.

between Trades and Industrial programs at the secondary level and success in the labor market.

If this reasoning from "Transition" findings is correct, policy makers are faced with a difficult problem. It is necessary to reconcile an educational program which prepares students for entry into a narrow range of jobs with the fact that over half of the students never enter the field for which trained. One policy response might be to make programs less job specific or prepare students for a cluster of occupations. The unexpected consequence of such a policy might be to remove from the program opportunities for students to complete tasks they perceive as meaningful to them and the world. "Transition" offers no evidence that such programs would be "successful".

Given the apparent "twin" contradictions of: (1) "freedom of occupational choice" and the social consequences of organizing education to track teenage youth to specific occupations; and (2) programs geared to prepare youth for entry into specific jobs are causal in helping youth succeed in the labor market but not by channeling them into the field for which prepared, some position has to be reached on the role of secondary occupational education in meeting specific manpower needs. Obviously, policy makers do not want to invest resources in preparing students for occupations which will have little demand in six years. Keeping occupational options open for students seems like a goal that would be consistent with the American value system, and intensive preparation for a specific occupation in the secondary school does not seem to conflict with this value.

"Transition" findings could help resolve these apparent conflicts by suggesting multiple criteria for investment in Trade and

Industrial programs offered in Massachusetts. It would not appear that occupational education at the secondary level should develop programs in response to manpower demand projections in the same way that adult manpower training programs do. It seems more consistent with "Transition" findings and the American value system to conceive of occupational education at the secondary level as a part of a broader set of human development services, including: postsecondary education, adult education, on-the-job training and self-education. The apparent contradiction between offering occupational education for specialized jobs and the previous knowledge that less than one half of program completors will ever work in the field for which prepared in the secondary school, compounded by the shaky track record of long-run manpower projections, may be only apparent and not real. "Transition" findings ought to help policy makers develop reasonable goals for expanded occupational education programs for males which have the general characteristics of Trade and Industrial programs in Massachusetts.

(2) Occupational education in the secondary school has not done very much to equalize occupational opportunities for females. In fact, the enrollment structure of occupational education in Massachusetts mirrors the sexual bias in the labor market. That females with occupational education education do no better (or worse) than those who did not enroll in occupational education programs is very likely related to the job opportunities for women in the labor market, and not unrelated to the fact that most women are enrolled in Office Occupations programs in the secondary school. If policy makers had decided to use secondary occupational education as a means of equalizing occupational opportunities for women, the enrollment picture

would have been quite different. The hard question facing policy makers is: What are the human consequences of preparing woman for entry into fields which are predominantly male through secondary occupational education? The larger issue is: Should secondary education be used to reshape society consistent with current values of those who make policy?

(3) "Transition" makes clear that Cooperative Programs for Trade and Industrial males ought to be expanded, if average number of months employed is an important outcome. It would seem a simple matter to institute a process to expand these programs. Summer workshops for instructors, the development of instructional materials and the dissemination of successful practices seem to describe a service the Massachusetts Department of Education is uniquely designed to provide.

"Transition" data would suggest that experimentation with Cooperative Programs in all occupational programs that are <u>similar</u> to Trade and Industrial programs would be sound. At the moment, there is insufficient data to evaluate Cooperative Programs in non-Trade and Industrial programs in Massachusetts.

(4) Occupational education at the secondary level is related to a poorer voting record for students during the first six years of postsecondary school life. That attendance in postsecondary school for occupational students tends to wash out this effect, does not suggest that this finding should be ignored. First, it is difficult to predict which students are going to attend postsecondary school and secondly, that occupational education students who do not attend a postsecondary school vote significantly less often than nonoccupational students who do not attend a postsecondary school is probably unacceptable to policy makers. It would seem that program modifications could

be initiated which would improve the citizenship activities of secondary occupational education students without altering the structure of the occupational program in any way.

(5) If the State Board of Education is serious about providing students with "guidance for initial job placement", they have a massive task ahead. Schools in Massachusetts are simply not doing much to help students find work.

(6) That Trade and Industrial students who do not attend a postsecondary school are more disadvantaged than college preparatory students and outperform all postsecondary students in terms of average annual income for the duration of "Transition" is certainly a strong argument for Trade and Industrial education at the secondary level. However, it is not an argument to abandon postsecondary education. It would be unreasonable to expect that graduates of four-year colleges would have stabilized in the labor market during the first two years after graduation. On the other hand, "Transition" findings might help postsecondary schools rethink how they describe themselves to others and themselves. In fact, it may be a relief to higher education that they no longer have the awesome and singular responsibility of determining the income distribution for most Americans.